

Application Serial No: 10/695,497
In reply to Office Action of 2 August 2004

Attorney Docket No. 82998

REMARKS / ARGUMENTS

Claims 1-12 are currently pending in the application. No claims are allowed. Claims 1-8 and 12 are rejected and claims 9-11 are objected to. Claims 1, 5-7 and 12 have been cancelled without prejudice or disclaimer. Claims 2 and 8 have been amended.

This Office Action rejects claims 1 to 6 under 35 U.S.C. § 102(b) as being anticipated by (U.S. Patent No. 5,755,408). The reference discloses fluid flow control devices providing effective turbulence/vortex generation of the boundary layer of a flow surface (Column 1, lines 45+) comprising boundary layer penetrators /vortex generators (items 26) and microelectromechanical system (MEMS) for detecting and controlling fluid flow operation reading on the claimed limitations, sensor measuring means in the form of pressure sensors (items 20), fluid flow effect means (items 18), and a controller means for displacements of the said boundary layer positions in the form of the said MEMS technology, relating to claims 2-4, 6, the reference discloses an air fluid ejecting means (item 20) and the said sensors (item 20) and fluid flow effect means (items 18), relating to claim 5, the reference discloses the said boundary layer penetrators / vortex generators positioned on a delta shaped wing (item 30) in a

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manner configured flush with the said wing structure as shown in Figures 3, 4.

This Office Action has rejected claims 7, 8, and 12 under 35 U.S.C. § 102(b) as being anticipated by Cohen (reference H: U.S. Patent No. 3,807,274). The reference discloses an underwater system for launching objects from submersibles that reads on the cited claim limitations comprising an underwater structure (item H) with a launch tube coupled to the said structure (item T), a breach door/muzzle door (item M) configured on the external surface of the said underwater structure providing vortex generators fluid flow streamlining/turbulence control as discussed in Column 1, lines 35-50, system control for positioning the said muzzle door effecting the said turbulence layer (item 50), and pressure sensors (items 120) connected to the underwater vehicle computer system to inform on the conditions of fluid flow at the muzzle door on the outside of the said underwater structure as discussed in Column 15, lines 2-55, relating to claim 8, the reference discloses the said item M ejecting fluid flow as shown in Figure 1.

This Office Action has rejected claims 7 and 12 under 35 U.S.C. § 103(a) as being unpatentable over Sirmalis et al. (reference K: U.S. Patent No. 5,964,175) in view of Cohen

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(reference H: U.S. Patent No: 3,807,274). The primary reference discloses an underwater launching system that reads on the cited claims except for citing specific vortex shedding means. The secondary reference discloses that it is well known in the fluid flow control art to provide vortex shedding generators. It would have been obvious to one of ordinary skill in the art at the time of the invention to have incorporated the Cohen vortex generators (items 26) to the surface of the Sirmalis et al. vessel (item 10) for the purposes of making the vessel acoustically quiet (Column 1, lines 47-54) and recognizing that primary reference discusses the effects of vortex shedding (Column 2, lines 64+).

This Office Action has been objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

These rejections and objections are respectfully traversed in view of these amendments and remarks. Applicant therefore solicits reconsideration and allowance of the claims as presented by the amendment herein.

In the Office Action, claims 1-6 were rejected under 35 USC 102(b) as being anticipated by Schmidt et al. (U.S. Patent No. 5,755,408). In response, claims 1, 5 and 6 have been cancelled

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without prejudice or disclaimer; therefore, the rejection of the Office Action is resolved for these claims. In regard to claim 2, the claim has been amended to recite a "vortex generator" that "generates the streamwise vortices by ejecting fluid into the fluid flow at an outlet flush with a hull of the vehicle"

Since the outlet is flush with the hull, the device that deploys outside of a surface (see the boundary layer penetrator 26 of FIG. 1 of the Schmidt reference) is not needed. As such, the ejection of fluid at an outlet flush with the hull in amended claim 2 of the present application is not anticipated by the Schmidt reference and the rejection of the Office Action is resolved for claim 2 and dependant claims 3 and 4.

In the Office Action, claims 7, 8 and 12 were rejected under 35 USC 102(b) as being anticipated by Cohen (U.S. Patent No. 3,807,274). In response, claims 7 and 12 have been cancelled without prejudice or disclaimer; therefore the rejection for the claims is resolved. In regard to claim 8, the claim has been amended to recite "...a vortex generator positioned within a hull of the vehicle and forward of the inlet with respect to forward movement of the vehicle, said vortex generator generating streamwise vortices by ejecting a flow of fluid into the water under pressure at an outlet flush with the hull as the vehicle moves therethrough..." Since the outlet is

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flush with the hull of the vehicle, the mechanical design that deploys outside of the hull (See Item M in Fig 1 of the Cohen reference) is no longer needed. As such, the pressurized ejection of fluid in amended claim 8 of the present application is not anticipated by the Cohen reference and the rejection of the Office Action is resolved for claim 8.

In the Office Action, claims 7 and 12 were rejected under 35 USC 103(a) as being unpatentable over Sirmalis et al. (U.S. Patent 5,964,175) in view of Cohen (U.S. Patent No. 3,807,274). In response, claims 7 and 12 have been cancelled without prejudice or disclaimer; therefore the rejection for the claims is resolved.

In the Office Action, claims 9-11 were objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. It is respectfully requested that any action on claims 9-11 be delayed until a determination is made on the amendment presented herein.

In view of the amended claims and the remarks herein, Applicant respectfully request reconsideration and allowance of the application.

The Examiner is invited to telephone Michael P. Stanley; Attorney for Applicant, at 401-832-6393 if, in the opinion of

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the Examiner, such a telephone call would serve to expedite the prosecution of the subject patent application.

Respectfully submitted,
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17 August 2004

By


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